Intelligent Landing System (ILS)

Completed Technology Project (2015 - 2017)

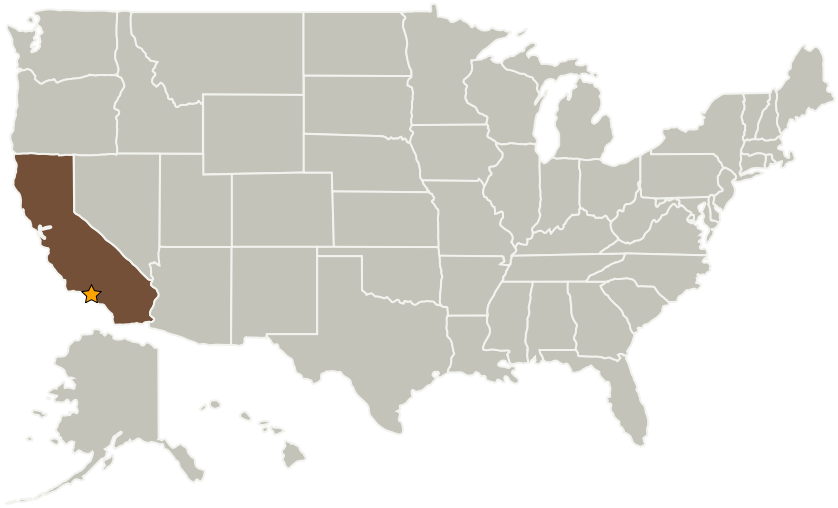
Project Introduction

Develop Intelligent Landing System (ILS) (Terrain Relative Navigation and Hazard Detection) that enables safe landing of the Europa Lander Mission: TRN enables landing near science sites identified from orbit (50m accuracy), TRN Enables avoidance of large known hazards (e.g., cliffs), Real-time onboard Hazard Detection Sensor is critical for identifying a safe landing site that is compatible to the lander. Allows potential final divert to landing site

Anticipated Benefits

NASA Funded: This technology is required by the current Europa Lander baseline mission. The benefits of the technology include ~50 m landing precision and integrated hazard avoidance. These technology allow a lander to autonomously land on Europa with an extreme and uncertain terrain. NASA unfunded: This technology will benefit future mission to the Ocean Worlds as it is the next step in autonomous landing systems for deep space application in extreme and uncertain topography and environments. OGA: The improved Lidar sensors may be beneficial to terrestrial defense and civil aviation. Commercial: The improved Lidar sensors may be beneficial to rendezvous and docking operations of commercial space industries that require reduced SWaP. Nation: Enables scientific discovery on the surface of Europa with high potential to impact other future missions to planetary bodies, in particular Ocean Worlds.

Primary U.S. Work Locations and Key Partners



Intelligent Landing System

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Game Changing Development

Game Changing Development

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations
California

Project Transitions

October 2015: Project Start

February 2017: Closed out

Closeout Summary: ILS as a system is at TRL3. The project established feasibi lity and developed some simulations of the technologies for Intelligent Landing S ystems.

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Project Management

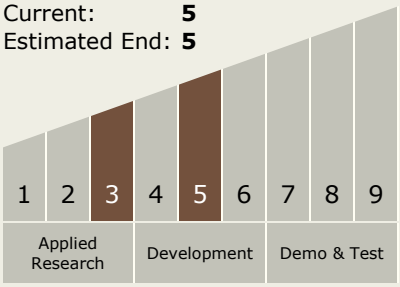
Program Director:
Mary J Werkheiser

Program Manager:
Gary F Meyering

Principal Investigator:
Thomas A Cwik

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Target Destination

Others Inside the Solar System